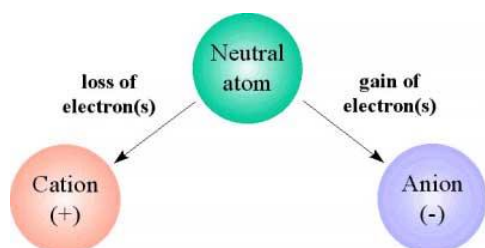


Ionic Compounds

How are ionic bonds formed?

The force that holds two atoms together is called a **chemical bond**. Formation of chemical bonds involves the outermost electrons in atoms which are called **valence electrons**. When electrons are transferred from one atom to another, the bond formed is called an **ionic bond**.

Model 1: Formation of Ions



A neutral atom becomes an ion either by losing an electron or by gaining an electron.

Group Instructions: When addressing each question, one group member should be assigned the task of reading the question aloud for the rest of the group. The manager should rotate that role among group members throughout the assignment.

Questions:

- 1) When an atom loses one or more valence electrons it acquires a _____ charge and is now called a(n) _____.
- 2) When an atom gains one or more valence electrons, it acquires a _____ charge and is now called a(n) _____.

Model 2: Names of Ions and Their Charges

Group and Charge	1 +1	2 +2	3 +3	15 -3	16 -2	17 -1
Name and Symbol	Lithium, Li ⁺			Nitride, N ³⁻	Oxide, O ²⁻	Fluoride, F ⁻
Name and Symbol	Sodium, Na ⁺	Magnesium, Mg ²⁺	Aluminum, Al ³⁺	Phosphide, P ³⁻	Sulfide, S ²⁻	Chloride, Cl ⁻
Name and Symbol	Potassium, K ⁺	Calcium, Ca ²⁺			Selenide, Se ²⁻	Bromide, Br ⁻

- 3) What is the relationship between the charge on the positive ions and their group numbers?
- 4) What is the relationship between the charge on the negative ions and their group numbers?
- 5) How is the name of the cation related to the name of the element?
- 6) How is the name of the anion related to the name of the element?
- 7) What type of elements form cations? _____
- 8) What type of elements form anions? _____
- 9) What would be the name, symbol and charge of the ions formed from these elements:
- a) rubidium _____
- b) iodine _____
- c) barium _____
- 10) In forming an ionic bond, the number of electrons lost by the _____ must equal the number of electrons gained by the _____.
- 11) As a group, write grammatically correct English sentences to describe three important concepts your group has learned in class today.